

Rhodora

JOURNAL OF THE
NEW ENGLAND BOTANICAL CLUB

Conducted and published for the Club, by

MERRITT LYNDON FERNALD, Editor-in-Chief

CHARLES ALFRED WEATHERBY

LUDLOW GRISCOM

STUART KIMBALL HARRIS

} Associate Editors

Vol. 44.

August, 1942.

No. 524.

CONTENTS:

List of Type Specimens in Elliott's Herbarium.

C. A. Weatherby 249

The Hybrid Oak, \times *Quercus Rudkini*, at Arlington, Virginia.

H. A. Allard 262

Hibiscus Moscheutos and *H. palustris*. *M. L. Fernald* 266

Desmodium glutinosum. *Bernice G. Schubert* 279

Chromosomes of *Jamesianthus*. *Dorothy A. Johnson* 280

The New England Botanical Club, Inc.

8 and 10 West King St., Lancaster, Pa.

Room 1001, 53 State St., Boston, Mass.

RHODORA.—A monthly journal of botany, devoted primarily to the flora of the Gray's Manual Range and regions floristically related. Price, \$2.00 per year, net, postpaid, in funds payable at par in United States currency in Boston; single copies (if available) of not more than 24 pages and with 1 plate, 20 cents, numbers of more than 24 pages or with more than 1 plate at higher prices (see 3rd cover-page). Volumes 1-8 or some single numbers from them can be supplied only at advanced prices which will be furnished on application; volumes 35-43 can be supplied at \$4.00 per volume, net, and some single numbers from them only at advanced prices (see 3rd cover-page). Notes and short scientific papers, relating directly or indirectly to the plants of the northeastern states, will be considered for publication to the extent that the limited space of the journal permits. Forms will be closed five weeks in advance of publication. Authors (of more than two pages of print) will receive 25 copies of the issue in which their contributions appear. Extracted reprints, if ordered in advance, will be furnished at cost.

Address manuscripts and proofs to

M. L. Fernald, 14 Hawthorn Street, Cambridge, Mass.

Subscriptions (making *all remittances* payable to RHODORA) to

Ludlow Criscom, 8 W. King St., Lancaster, Pa., or, preferably, Museum of Comparative Zoology, Cambridge, Mass.

Entered at Lancaster, Pa., Post Office as Second Class Mail Matter.

INTELLIGENCER PRINTING COMPANY
Specialists in Scientific and Technical Publications
EIGHT WEST KING ST., LANCASTER, PA.

CARD-INDEX OF NEW GENERA, SPECIES AND VARIETIES OF AMERICAN PLANTS, 1885 TO DATE.

For American taxonomists and all students of American plants this is the most important supplement to the Index Kewensis. A work of reference invaluable for larger herbaria, leading libraries, academies of sciences, and other centers of botanical activity. Issued quarterly, at \$22.50 per 1000 cards. A limited number of complete sets of the past Issues can now be supplied at a greatly reduced price.

GRAY HERBARIUM of Harvard University,
Cambridge, Mass., U. S. A.

MEMOIRS OF THE GRAY HERBARIUM. A series of illustrated quarto papers issued at irregular intervals, sold separately.

No. III. The Linear-leaved North American Species of Potamogeton, Section Axillares, by M. L. Fernald. 183 pp., 40 plates, 31 maps. 1932. \$3.00.

No. IV. The Myrtaceous Genus Syzygium Gaertner in Borneo, by E. D. Merrill and L. M. Perry. 68 pp. 1939. \$1.50.

Gray Herbarium of Harvard University, Cambridge, Mass.

Rhodora

JOURNAL OF

THE NEW ENGLAND BOTANICAL CLUB

Vol. 44.

August, 1942.

No. 524.

CONTRIBUTIONS FROM THE GRAY HERBARIUM OF
HARVARD UNIVERSITY—NO. CXLI

A LIST OF TYPE SPECIMENS IN ELLIOTT'S HERBARIUM

C. A. WEATHERBY

No taxonomist needs to be told that Stephen Elliott's "Sketch of the Botany of South Carolina and Georgia" is a classic in its field, and most of us know that his herbarium is preserved in the Charleston Museum. Some of us have seen it, or parts of it. But there is no published account of its present condition; prospective visitors cannot readily learn in advance whether or not it still contains the material in which they are especially interested; and had it met with any fatal accident there would have been no record of what it had included. With all this in mind, my wife and I visited Charleston in October, 1941, and, through the courtesy of the Director of the Museum, Mr. E. Milby Burton, and his staff, were enabled to go through the whole herbarium and list and photograph the surviving types. The results of our labors are here published, in the hope that they may be of use to future investigators.

The Elliott herbarium, like the Museum itself, has had its vicissitudes. I have not been able to discover at what date it came into the possession of the Museum, but notes accompanying the specimens show that it was accessible to, and consulted by, Gray, Ravenel and Stephen Olney well back into the nineteenth century. At the time of Elliott's death (1830), the Museum seems to have been in a rather quiescent state and to have

remained so until 1850. That was the time of Gibbes and his associates; in that year, the American Association for the Advancement of Science met in Charleston, with Agassiz as one of its leaders. The result was a considerable revival of local interest in natural history and in the Museum, its transfer to rooms in the library building of the College of Charleston and the appointment of an active curator, Mr. F. S. Holmes. Progress, however, was interrupted by the Civil War. During the siege of Charleston, such of the Museum exhibits as would stand that treatment were buried; the more fragile were moved into the country, where some of them were burned by Sherman's raiders. The Elliott herbarium escaped, only to fall into the hands of one of those curators who does excellent work in his own subject and is careless—and often contemptuous—of everything else.¹ When, in the last decade of the nineteenth century, F. L. Scribner and later E. D. Merrill went to look up Elliott's grasses, they found the herbarium stored casually against a damp brick wall, a prey to mould, mice and insects. According to an article in the Charleston Evening Post for March 30, 1905, sixteen portfolios were first discovered, then four more and the twenty-first finally unearthed in 1905, in a pile of waste paper about to be burned.²

Under the direction of Prof. George Hall Ashley and his successor as curator, Prof. Paul M. Rea, the whole herbarium was sent to Biltmore, then at the height of its botanical activity, to be cleaned, poisoned, generally put in order and safely stored. All this was faithfully and intelligently done by Messrs. Beadle and Boynton. They also determined all the specimens according to Small's Flora, not always very critically but for the most part helpfully, and indicated the types of such species as were maintained by Small under Elliott's original names, but no others. They were to have published an account of the herbarium and did prepare a partial manuscript catalogue, but this part of their work was never finished.

¹ There is perhaps no surer mark of the true scholar than respect for work in other disciplines than his own, unfamiliar to him. In this connection, a word of public commendation is due those librarians and faculty members of Hamilton College who, though not themselves botanists, have kept the locally important herbarium of Sartwell, acquired about 1860, to this day in as good condition as when it was received.

² Evidence as to the original number of portfolios is conflicting. Scribner, reporting on the results of his and Merrill's examination of the grasses in U. S. Dept. Agric. Div. Agrost. Circular 29 (1901), states that there were twenty-eight volumes. The writer in the Post says twenty-one.

Rea refused to ask for the return of the herbarium until he could give it proper storage. About 1908 he acquired a large safe; the herbarium was then brought back to Charleston and has since had good care. When I first saw it in 1932 it was still in the safe. It is now kept in a steel-sheathed case, originally designed for bird-skins and therefore not altogether convenient for herbarium specimens, but dust- and insect-proof. Any benefactor who might be moved to give the Museum a good steel herbarium-case for the Elliott specimens would do a service to taxonomy.

Beadle and Boynton did not alter Elliott's arrangement, said to have been alphabetical; in 1913-16, however, the Museum staff rearranged the specimens in the sequence of Small's Flora, in the process discarding Elliott's portfolios and substituting modern genus-covers. The individual specimens, however, are still in the gray paper folders of various sizes which Elliott used, pasted or stripped to the inner pages. Labels are on slips about one by two inches, often slit to permit stems to be thrust through them, and usually pasted down across the bases of the specimens. They are very neatly and legibly written and usually give data of habitat and the name of the collector, if other than Elliott.

Naturally, the herbarium shows obvious signs of past misfortune. There is a good deal of breakage and insect damage; some specimens have no labels; many others have disappeared, leaving only labels or fragments of labels to represent them; many, including all the *Juncaceae*, are missing altogether. But it is a pleasure to be able to record that most of the surviving types, though often fragmentary, are in good condition.

The list which follows aims at nothing more than a catalogue of Elliott's existing types, which, with the photographs, may serve as a useful record in case of accident to the originals. It is not wholly complete; I may have missed a few Elliott types¹ and I found myself unprepared to deal with whatever representatives there may be of the forty-odd species of Muhlenberg's Catalogue first published with descriptions by Elliott. But so far as it goes, the list should give a correct statement. Elliott's names are listed alphabetically, with the volume and page of the

¹ Scribner, in the report above cited, speaks as if he had seen some specimens which I did not find.

Sketch on which each appears and with the statement of habitat on the label—not always the same as that in the Sketch. It is, of course, to be understood that in the case of names not in the list, no type material was found; and it will be at once apparent that missing types are mostly in groups, like the *Compositae*, most liable to attack by insects. I attempted little in the way of critical determination, but the determinations of others, taken either from the folders or from literature when, as in the case of Hitchcock's Manual, the authors had presumably seen the type specimens, are freely given, as guides at least to the approximate position of the species. Fortunately, Elliott's descriptions are good and seem not to have been much misunderstood; and interpretations were verified through the loan of part of the herbarium to Torrey. As in my notes on Desvaux's types, I have indicated by small capitals under each species, where there are synonyms, the name which appears most likely to be nomenclaturally and taxonomically correct. Names of those making the determinations, or otherwise responsible for the taxonomic placing of species, are added in parentheses. The abbreviation "B. & B." indicates Beadle & Boynton: where the phrase "a cover marked . . ." is used, reference is to Elliott's original folders.

Sets of our photographs have been deposited at the Gray Herbarium, the United States National Herbarium and the New York Botanical Garden.

It may be added that the Elliott herbarium contains isotypes of three species of Rafinesque—*Aristida geniculata*, *Polanisia graveolens*, and *Spiraea obovata*. It has also isotype material of *Psoralea floribunda*, *Petalostemum decumbens*, *Crypta minima* and *Monarda aristata* of Nuttall. Elliott isotypes are to be found in the Torrey herbarium at New York and presumably in the herbaria of Muhlenberg and Schweinitz at the Philadelphia Academy.

The historical matter here used is taken mostly from a series of articles by William G. Mazyck in the Bulletin of the Charleston Museum. I am indebted to Prof. M. L. Fernald for generous aid in determining identities.

Agrostis arachnoides Ell. i. 134. A loose specimen, without label, in a cover marked "*Agrostis arachnoidea*" is to be taken as type. *A. ELLIOTTIANA* Schult., a name based on *A. arachnoides* Ell., not *A. arachnoidea* Poir.

Agrostis trichopodes Ell. i. 135. "Hab. Georgia in aridis. Flor. autumn. Dr. Baldwin". The number 437 on a separate slip. MUHLENBERGIA EXPANSA (Poir.) Trin. (Hitchcock).

Aira triflora Ell. i. 153. "Hab. Athens, Geor. Flor. April. Mr. Green". POA CUSPIDATA Nutt. (Hitchcock).

Ammi costatum Ell. i. 350. "Hab. in inundatis, Ogeechee. Flor. Sept. Nov." Specimen in flower only. PTILIMNIUM COSTATUM (Ell.) C. & R.

Andropogon ciliatus Ell. i. 144. "Hab. in aridis juxta Beaufort. Flor. Sept." SORGHASTRUM NUTANS (L.) Nash (Beadle & Boynton; Hitchcock).

Andropogon tetrastachyus Ell. i. 150. "Hab. in humidis juxta Charleston. Flor. Sept. Oct." *A. virginicus* L. (Hitchcock); A. VIRGINICUS var. TETRASTACHYUS (Ell.) Hack. (Fernald & Griscom).

Andropogon vaginatus Ell. i. 148. "Flor. per aut. in aridis". A. VIRGINICUS (Scribner & Merrill; Hitchcock).

Apogon humilis Ell. ii. 267. Specimen without label in cover marked "Apogon humilis" and answering to the description should be taken as type. SERINIA OPPOSITIFOLIA (Raf.) Ktze. (B. & B.)

Arenaria diffusa Ell. i. 519. "Hab. in humidis. Flor. Ma.-Jul." On another label "35. Micropetalum. See letters". A. LANUGINOSA (Michx.) Rohrb. The specimen is a single branch or stem with two flowers.

ARISTIDA GRACILIS Ell. i. 142. Specimen without label in cover marked "Aristida gracilis" and agreeing with description should be taken as type.

ARISTIDA SPICIFORMIS Ell. i. 141. "Flor. aut. mihi rara. in Pineto juxta Silk Hope, Chatham Co., Georgia".

Asclepias angustifolia Ell. i. 325. "Habitat in pinetis humidis. Flor. Maio." A. MICHAUXII Decsne. (B. & B.)

Aulaxanthus ciliatus Ell. i. 102. "Hab. in aridis. Flor. Oct." ANTHAENANTIA VILLOSA (Michx.) Beauv. (Scribn. & Merrill; Hitchcock).

Aulaxanthus rufus Ell. i. 103. Label bears no data except the name and number 523. ANTHAENANTIA RUFA (Ell.) Schultes.

BOLTONIA DIFFUSA Ell. ii. 400. A cover marked *Boltonia diffusa* contains a specimen without label, consisting of a panicle without leaves and with one or two remnants of flowers.

BRICKELLIA CORDIFOLIA Ell. ii. 290. Two feet of stem, one involucre in situ, detached portions of half-devoured leaves, and some loose achenes are all that remain to represent this new genus and species. The specimen has lost its label, but agrees, as far as it goes, with the description and is in a cover marked "Brickellia cordifolia".

Cacalia atriplicifolia var. *angulata* Ell. ii. 310. A battered specimen labelled "Cacalia Hab. St. Thomas and St. Denis. Mr. Caradeux" and in a cover marked with the varietal name no doubt represents this.

Calopogon pulchellus var. *graminifolius* Ell. ii. 499. Three loose specimens without labels in cover marked with the varietal name, no doubt represent this. They are *C. BARBATUS* (Walt.) Ames (D. S. Correll).

Calycanthus inodorus Ell. i. 576. "Hab. in humidis. Fl. Apr. Mai." *C. NANUS* (Loisel.) Small (B. & B.).

Carex castanea Ell. ii. 546. "Carex Hab. in udis, Ogeechee. Flor. Aprili". Olney added to the label (he says in attached note inadvertently) "Elliottii". *C. ELLIOTTII* Schwein. & Torr., based on *C. castanea* Ell. not Wahlenb.

CAREX GLAUCESCENS Ell. ii. 553. Type not found. For the proper application of the name, see Mackenzie in Small, Fl. se. U. S. ed. 2, 1324 and Weatherby & Griseom in RHODORA xxxvi. 40.

COLLINSONIA PUNCTATA Ell. i. 36. "Hab. in umbrosis. Flor. Sept. Oct."

Collinsonia verticillata Baldw. ex Ell. i. 36. "Hab. Milledgeville Geor. Dr. Boykin". MICHELIELLA VERTICILLATA (Baldw.) Briq. No specimen of *C. verticillata* var. *purpurascens* Ell. was found.

Coreopsis Oemleri Ell. ii. 435. A specimen labelled merely "found in S. Carolina by Mr. Oemler" and determined as "*C. major Oemleri* (Ell.) Britton" by B. & B. probably represents this species. *C. MAJOR* var. *OEMLERI* (Ell.) Britton (Sherff).

Cyperus mariscoides Ell. i. 67. There is a specimen so labelled, but it is from North Carolina, coll. Schweinitz. It is *C. filiculmis*.

Cyperus repens Ell. i. 69. "Hab. in cultis circa Charleston. Flor. Aug.-Oct." *C. ESCULENTUS* L. (B. & B.)

CYPERUS TETRAGONUS Ell. i. 71. Name only and number 83 on label.

DICHROMENA LATIFOLIA Baldw. ex Ell. i. 90. A specimen labelled with an unpublished name and "hab. Geor. Dr. Baldwin" agrees with the description and no doubt represents this species.

Dracocephalum obovatum Ell. ii. 86. "Hab. St. Mary's, Georg. Dr. Baldwin" and on a separate slip the number 197. *PHYSTEGIA obovata* (Ell.) R. K. Godfrey in herb., n. comb.

Drosera foliosa Ell. i. 376. "Hab. Chesterfield Co. So. Car. Dr. Macbride". *D. INTERMEDIA* Hayne with elongated axis, presumably from growing in water (f. *NATANS* Heuser).

Elephantopus nudicaulis Ell. ii. 481. Specimen in cover marked with this name, without label but agreeing with description, should be taken as type. *E. TOMENTOSUS* L. (B. & B.)

Erianthus contortus Ell. i. 40. There is a cover labelled *E. contortus*, but the specimen within, labelled "*Erianthus brevibarbis* Mich. Hab. in humidis. Flor. Sept. Oct.", does not agree with the description.

ERIANTHUS STRICTUS Baldw. ex Ell. i. 39. Specimen without label, determined as *E. strictus* by B. & B., may be taken as type.

Eryngium Plukenetii Ell. i. 582. Type not found. The figure of Plukenet cited may, of course, if identifiable, serve as type.

EUPATORIUM PINNATIFIDUM Ell. ii. 295. Specimen without leaves and without label, in cover marked "*E. pinnatifidum*", has been designated as type by B. & B.

EUPATORIUM SCABRIDUM Ell. ii. 299. "Flor. Oct. in sylvis subaridis. 157".

EUPHORBIA CORDIFOLIA Ell. ii. 656. Type missed by me, but seen by Fernald and reported upon by him in *RHODORA* xliii. 198 (1941).

EUPHORBIA PANICULATA Ell. ii. 660. "Hab. juxta Columbianam, So. Car. Flor. Aug. Sept." Three segments of stem, one cauline leaf and a branch bearing an inflorescence are all that is left of the type.

Festuca parviflora Ell. i. 170. "Hab. in pinetis Car. Flor. Apr. Mr. Bennett." *F. OCTOFLORA* Walt. (Hitchcock).

Fuirena hispida Ell. i. 579. "Hab. Milledgeville, Geor. Dr. Boykin." According to Fernald, *RHODORA*, xl. 397, *F. hispida* Ell. is the same as true *F. squarrosa* Michx.

GERARDIA FASCICULATA Ell. ii. 115. "Hab. in humidis insularum mar. Flor. Jun.-Sept."

Gerardia Plukenetii Ell. ii. 114. Pennell has designated as type a loose specimen without label in cover marked "*G. Plukenetii*". It agrees with Elliott's description; Pennell considers it *G. SETACEA* Walt.

Glycine mollissima Ell. ii. 235. "Hab. St. Mary's, Geor. Dr. Baldwin". The label of what I take to be the type specimen bears no name, but the data are those given in the Sketch. *Dolicholus mollissimus* (Ell.) Vail. *RHYNCHOSIA MOLLISSIMA* (Ell.) S. Wats.

GRATIOLA MEGALOCARPA Ell. i. 16. No specimen seen. The name, however, is based on *G. acuminata* sensu Pursh, not Walter, and Pennell (*Mon. Phil. Acad.* i. 92) has therefore typified it by a Pursh specimen, extant in the herbarium of the Philadelphia Academy.

Hypoxis filifolia Ell. i. 397. "Flor. Apr. in aridis, Ogeechee Ferry". *H. JUNCEA* Sm. (B. & B.)

Ipomoea orbicularis Ell. i. 257. "Hab. in arenosis maritimis, Cumberland. Flor. per aetatem. Dr. Kollock." *I. PES-CAPRAE* (L.) Sweet (B. & B.)

I. errata
I

LATHYRUS PUSILLUS Ell. ii. 223. "Hab. St. John's juxta Cooper R. Flor. Mars. Dr. Trescott."

LECHEA VILLOSA Ell. i. 184. "major Mich. nec L. Flor. per aet. in pascuis aridis ubique." The type is a small specimen with a long basal branch.

Liatrix Walteri Ell. ii. 285. A mixed sheet, with heads apparently of *L. scariosa* and leaves answering to Elliott's description, may partly represent this. Label: "Hab. in aridis juxta Beaufort. Flor. Sept. 323" *CARPHEPHORUS TOMENTOSUS* (Michx.) T. & G. (Gray) var. *WALTERI* (Ell.) Fernald in *RHODORA* xlii. 481 (1940).

LINDERNIA REFRACTA Ell. i. 579. "Hab. in sphagnis, Barnwell Co. So. Car. Flor. Aug."

Ludwigia cylindrica Ell. i. 213. "Hab. in aquosis juxta Beaufort. Flor. Aug. Sept." *L. GLANDULOSA* Walt. (B. & B.)

LUDWIGIA LANCEOLATA Ell. i. 213. A specimen labelled "Ludwigia Hab. in humidis. Dr. Baldwin" is indicated as type by B. & B. and agrees with the description.

LUDWIGIA NATANS Ell. i. 581. Specimen without label, in cover marked "*L. natans*" and agreeing with the description, is designated as type by B. & B.

LUDWIGIA SPHAEROCARPA Ell. i. 213. "Hab. in humidis juxta Orangeburg, So. Car. Flor. Aug."

LYCOPUS ANGUSTIFOLIUS Ell. i. 26. Fernald has suggested as type material two loose specimens in cover marked *Lycopus americanus* and with no label except that someone has written "*Lycopus americanus* M" "96" on the inside of the cover. These plants agree with the description.

Lycopus sinuatus Ell. i. 26. Specimen in cover marked *Lycopus sinuatus*, with a loose label reading "*Lycopus europaeus?* Hab. in aquosis Ogeechee. Flor. Oct. Nov." is apparently the type. The leaves, as described, are very deeply cut with long, narrow segments. *L. AMERICANUS* Muhl.

Lysimachia Herbemonti Ell. i. 232. "Hab. Columbia, S. Car. Mr. Herbemont." *L. ASPERULIFOLIA* Poir. (B. & B.)

LYTHRUM LANCEOLATUM Ell. i. 544. "Hab. in humidis. Flor. Jun. Jul."

Mariscus cylindricus Ell. i. 74. B. & B. have marked an unlabelled specimen, accompanied only by the number 351, as this species. It agrees with the description and should probably be taken as the type. *Cyperus Torreyi* Britton, based on *M. cylindricus* Ell., not *C. cylindricus* Chapm. *C. RETRORSUS*, var. *CYLINDRICUS* (Ell.) Fern. & Grise.

Micranthemum emarginatum Ell. i. 18. "Hab. in aquosis. Flor. per aetat." *M. UMBROSUM* (Walt.) Blal e (Pennell).

MONOTROPSIS ODORATA Ell. i. 479. "Monotropsis Schweinitz. Hab. juxta Salem, No. Car. Flor. Feb. Mar. Mr. Schweinitz."

Ophiorrhiza lanceolata Ell. i. 238. A specimen labelled "Ophiorrhiza Mitreola L. in humidis in insulis mar. praec. Chaplinn Fregi. Flor. Aug. Sept." has been indicated by someone (perhaps Ravenel) as the *O. lanceolata* of the Sketch. The leaves of this specimen, however, are not long-lanceolate. The description applies better to an unlabelled specimen mounted beside it, in which the rameal leaves are long-lanceolate. The two cauline ones left, however, are elliptic rather than lanceolate. CYNOCOTONUM MITREOLA (L.) Britton (B. & B.)

Orchis bidentata Ell. ii. 488. A specimen (flowering raceme and three reduced upper leaves) without label, but agreeing with the description, probably represents this species. "Perularia flava (L.) Farwell" (B. & B.), i. e. HABENARIA FLAVA (L.) Spreng.

OXALIS RECURVA Ell. i. 526. "Flor. Apr. Hab. in cultis et pascuis circa Charleston." The specimen has suffered much; no flowers and only a few leaves are left.

PANICUM AMARUM Ell. i. 121. Type not found. Ravenel has annotated as "Panicum amarum Ell. Sk." a specimen labelled by Elliott with an unpublished name and the data "Hab. in spissis maritimis Flor. Sept." This specimen is *P. virgatum* and was so determined by Scribner & Merrill.

PANICUM ANGUSTIFOLIUM Ell. i. 139. "Hab. in aridis. Flor. Ma?"

Panicum cenchroides Ell. i. 111. "Hab. Jekyl, Georg. Dr. Baldwin." No. 475 on separate slip. CENCHRUS MYOSUROIDES HBK. (Scribner & Merrill; Hitchcock).

PANICUM CILIATUM Ell. i. 186. "Flor. per . . . in umbrosis aridis. 480."

Panicum corrugatum Ell. i. 113. "Hab. Georgia. Dr. Baldwin." A separate slip, probably Baldwin's, reads: "511. Is this a var. of glaucum?" SETARIA CORRUGATA (Ell.) Schultes.

Panicum crusgalli var. *muticum* Ell. i. 114. "var. mutica Carol." ECHINOCHLOA CRUSGALLI var. MITIS (Pursh) Peterm. (Hitchcock).

PANICUM ENSIFOLIUM Baldw. ex Ell. i. 126. "Hab. in humidis. Georg. Dr. Baldwin."

Panicum gibbum Ell. i. 116. "Flor. Aug. Sept. Car. Georg. in locis udis." SACCIOLEPIS STRIATA (L.) Nash (Hitchcock).

PANICUM GYMNOCARPON Ell. i. 117. "Hab. in solis subhumidis juxta Savannah. Flor. Aug. Sept. Dr. Baldwin."

PANICUM HIANIS Ell. i. 118. "Hab. in pinetis humidis. Flor. Aug. Oct."

PANICUM LANUGINOSUM Ell. "Hab. Georg. Dr. Baldwin". no. 483 on separate slip.

Panicum multiflorum Ell. i. 122. "Hab. in umbrosis. Flor. Mai. June". *P. POLYANTHES* Schult., based on *P. multiflorum* Ell. not Poir.

Panicum ovale Ell. i. 123. "Hab. St. Mary's, Georg. Dr. Baldwin." No. 290.

Panicum pauciflorum Ell. i. 120. "Hab. in humidis umbrosisque. Flor. Apr. Mai." On separate slip no. 490. *P. OLIGOSANTHES* Schult., based on *P. pauciflorum* Ell. not R. Br.

Panicum scabriusculum Ell. i. 121. "Hab. Georg. Dr. Baldwin."

Panicum sphaerocarpon Ell. i. 125. "Hab. Georg. Dr. Baldwin." On separate slip no. 498.

Panicum strigosum Muhl. ex Ell. i. 126. "Hab. in humidis, Car. et Georg. Flor. Ma. Jun."

Panicum villosum Ell. i. 124. "Hab. in umbrosis. Flor. Ap. Ma." *P. CONSANGUINEUM* Kunth, based on *P. villosum* Ell. not Lam.

Panicum viscidum Ell. "Hab. in humidis. Flor. per aetat." *P. SCOPARIUM* Lam. (Scribner & Merrill; Hitchcock).

Panicum Walteri Ell. i. 115. "Hab. in humidis circa stagnum 6½ a Sav. versus Ogeechee. Flor. Mai. 478" *P. HEMITOMON* Schult., based on *P. Walteri* Muhl. (which is the same as *P. Walteri* Ell.), not Pursh.

Paspalum dasyphyllum Ell. i. 105. "Hab. in cultis. Flor. Aug. Oct." *P. SUPINUM* Bosc ex Poir. (Chase).

Paspalum vaginatum Ell. i. 109. "Hab. Georg. Dr. Baldwin." On a separate slip "membranaceum 477". *P. DISSECTUM* L. (Chase).

Pentstemon dissectum Ell. ii. 129. "Hab. Louisville, Georgia. Mr. Jackson."

Phlox cordata Ell. i. 244. A specimen without label, determined as *P. MACULATA* L. by B. & B. and by Wherry and in a cover marked with a manuscript name, very likely represents this species. It agrees with the description.

Poa ambigua Ell. i. 165. "Hab. in mont. Carolinae. Flor. autumn. Dr. Macbride." *TRIODIA LANGLOISHII* (Nash) Bush. *P. ambigua* Ell., not *T. ambigua* R. Br. (Hitchcock).

Poa conferta Ell. i. 158. "Hab. juxta Columbiam. Mr. Herbermont. 518". Elliott's name is, however, a substitute for *P. glomerata* Walt., given under the mistaken impression that there was a *P. glomerata* L. *ERAGROSTIS GLOMERATA* (Walt.) L. H. Dewey (Scribner & Merrill; Hitchcock).

Poa nitida Ell. i. 162. "Hab. in cultis, Paris Island. Flor. per aetatem." *ERAGROSTIS ELLIOTTII* S. Wats., based on *P. nitida* Ell. not Lam.

Poa tenuis Ell. i. 156. "Hab. Greenville Co., So. Car. Flor. aut. Mr. Moulins." *ERAGROSTIS CAPILLARIS* (L.) Nees (Scribner & Merrill; Hitchcock).

Polygala ramosa Ell. ii. 186. A specimen without label and in a cover marked only "Polygala", but agreeing with the description, has been designated as type by B. & B.

Polygonum fimbriatum Ell. i. 583. "Hab. in aridis inter amnes Flint et Chatahoochie, Geor. Flor. Aug. Sept." THYSANELLA FIMBRIATA (Ell.) A. Gray.

POLYGONUM PUNCTATUM Ell. i. 455. There is much confusion and probable transposition of labels among the specimens here. That labelled "*Polygonum barbatum* Muhl. punctatum mihi" is *P. hydropiperoides* Michx. and, of course, does not agree with Elliott's description of *P. punctatum*. The specimen labelled "*Polygonum Hydropiperoides*—Mite Persoon" (the latter Elliott's name for *P. hydropiperoides* Michx.) is *P. setaceum* Baldw. The only specimen of *P. punctatum* as usually interpreted is labelled "*P. var. Hydropiper*".

Under these circumstances it seems best to be guided by Elliott's description and synonymy, to treat *P. punctatum* as a substitute name for *P. Hydropiper* sensu Michx. not L. and to continue to apply it in the now current sense, as synonymous with (and earlier than) *P. acre* HBK.

POLYGONUM SETACEUM Baldw. ex Ell. As above noted, there is no specimen so labelled. Here also it seems best to be guided by Elliott's description and the fact that there is a specimen of *P. setaceum* which he had seen, and continue to apply the name in its current sense.

PRUNUS UMBELLATA Ell. i. 541. A specimen labelled "*Prunus* Hab. in aridis umbrosis. Flor. Mart." agrees with the description and may be taken as type. It is in a cover marked "*Prunus pennsylvanica*?"

Psoralea eglandulosa Ell. ii. 198. A specimen with one slip reading "*Ps. eglandulosa*" and another "Milledgeville. Dr. Boykin", in a cover marked "*Psoralea eglandulosa*". *P. pedunculata* (Mill.) Vail (B. & B.); *P. PSORALIOIDES* (Walt.) Cory var. EGLANDULOSA (Ell.) F. E. Freeman in RHODORA xxxix. 426 (1937).

Psoralea multijuga Ell. ii. 198. "Hab. Abbeville, So. Car. Mr. Gourdine." The label gives a manuscript name, but the specimen agrees with the description and has been designated as type by B. & B. It is accompanied by a note by Miss Vail stating that it was examined by Britton and Small in 1894 and determined as *Astragalus glaber* Michx. This determination, though adhered to by Small in both editions of his Flora and in his Manual, is disputed by Boynton in another note on the folder. He, however, does not say what the specimen is. In habit and foliage, it does resemble *A. glaber*, but the inflorescence appears quite different. I did not recognize it; it should have further investigation.

Ranunculus oblongifolius Ell. ii. 58. "Hab. in humidis. Flor. Mai." no. 588. R. PUSILLUS Pursh (Fernald).

Ranunculus palmatus Ell. ii. 61. "Hab. St. John's, Santee. Flor. Mai. Dr. Macbride." no. 590. *R. HISPIDUS* Michx. (with appressed pubescence) (Fernald).

Ranunculus trachysperma Ell. ii. 65. "Hab. St. John's, Santee. Flor. Maio. Dr. Macbride." no. 591. *R. PARVIFLORUS* L. (B. & B.)

Rhexia angustifolia Ell. i. 438. "Hab. in udis juxta Savannah. Flor. Jun. Jul." The specimen is labelled *R. LANCEOLATA* Walt.; Elliott's name appears to be no more than an illegitimate substitute for Walter's.

RHYNCHOSPORA CADUCA Ell. i. 62. "Hab. in udis juxta Charleston. Flor. per aetatem."

RHYNCHOSPORA PLUMOSA Ell. i. 58. "Hab. in pratis aridis, Geor. Car. Flor. Mai. Jul."

SABBATIA BRACHIATA Ell. i. 284. "Hab. in Car. et Geor. superiore. Mr. Herbemont. Dr. Boykin."

Sabbatia corymbosa Baldw. ex Ell. i. 283. "Hab. in pinetis humidis. Flor. Jul. Aug." On separate slip no. 332. *S. DIFFORMIS* (L.) Druce.

SABBATIA GENTIANOIDES Ell. i. 286. "Hab. in humidis, Bull. Co., Georg. Flor. Aug. Mr. Abbot."

Salsola linearis Ell. i. 332. "Flor. July-Sept. in scirpetis maritimis." *SUAEDA LINEARIS* (Ell.) Moq.

Salvia Claytoni Ell. i. 32. A specimen labelled "*Salvia Verbenaca* [the epithet later than the rest of the label] hab. pascuis aridis, Beaufort" probably represents this, though the leaves are scarcely cordate. *S. VERBENACA* L. (B. & B.); Elliott himself doubted if his plant was distinct from it.

× *SARRACENIA CATESBAEI* Ell. ii. 11. "Hab. Chesterfield Co., So. Car. Dr. Macbride" and at top of label "Catesby 69 b". *S. flava* × *purpurea* (J. M. MacFarlane).

Scirpus ciliatifolius Ell. "Hab. in humidis. Flor. Sept. Oct." *BULBOSTYLIS CILIATIFOLIUS* (Ell.) Fernald.

Scirpus coarctatus Ell. i. 83. "Flor. aut. in aridis Beaufort." *BULBOSTYLIS COARCTATUS* (Ell.) Fernald.

Scirpus DIVARICATUS Ell. i. 88. "In humidis pinetis. Flor. Jun." No. 272.

Scirpus equisetoides Ell. i. 79. "Hab. St. Stephen's, So. Car. et juxta Fayetteville, No. Car. Flor. Apr. Mai. Mr. Schweinitz." *ELEOCHARIS EQUISETOIDES* (Ell.) Torr.

Scirpus schoenoides Ell. i. 89. "Hab. Georgia. Dr. Baldwin." No. 408. *RHYNCHOSPORA SCHOENOIDES* (Ell.) Britton.

Scirpus simplex Ell. i. 76. "Hab. Ogeechee in udis". On separate slip no. 475. *ELEOCHARIS TUBERCULOSA* (Michx.) R. & S. (Svenson).

Scirpus stenophyllus Ell. i. 83. "Flor. per aet. in aridis." *BULBOSTYLIS STENOPHYLLUS* (Ell.) Fern.

Scirpus sulcatus Ell. i. 86. "Hab. in humidis. Flor. Sept." FIMBRISTYLIS DIPHYLLA (Retz.) Vahl. *F. laxa* Vahl (B. & B.)

SCLERIA GRACILIS Ell. ii. 557. "Hab. St. Mary's, Geor. Dr. Baldwin." The label does not bear the specific epithet, but habitat-data and description agree and it is designated as type by B. & B.

Scleria hirtella var. *strigosa* Ell. ii. 560. "Hab. Florida. Flor. Maio. Dr. Baldwin." Also another label, presumably Baldwin's, reading: "10. Scleria Is this one described by Mich.?" S. CILIATA Michx. (B. & B.)

Sesuvium pentandrum Ell. "Hab. in salis juxta Charleston. Flor. per aetat." A second cover, marked "Sesuvium pentandrum", but without label, contains better material than that accompanying the label. S. MARITIMUM (Walt.) BSP.

Sida gracilis Ell. ii. 159. "In aridis juxta Beaufort. Flor. Sept." The stem is minutely puberulent with branched hairs, not glabrous, as described. SIDA ELLIOTTII T. & G., based on *S. gracilis* Ell. not Rich.

Silene fimbriata Baldw. ex Ell. i. 515. The type has no Elliott label, but one, probably of Baldwin, reading: "Silene fimbriata. Crawford Co." S. BALDWINII Nutt. (B. & B.)

Sisymbrium Walteri Ell. ii. 146. "Sisymbrium tanacetifolium Walt. Hab. in humidis. Flor. Maio." RORIPPA WALTERI (Ell.) Mohr.

Sium tricuspidatum Ell. i. 354. "Hab. in humidis. Flor. per aetat." The specimen is almost wholly consumed by insects; only stems and fragments of leaves remain. OXYPOLIS RIGIDIOR (L.) Raf. (B. & B.)

Solanum nigrum L. var. *virginicum* Ell. i. 281. "In cult. et pascuis ubique." The leaves in the specimen accompanying Elliott's label are not repand; it has been determined by B. & B. as *S. nigrum*. Elliott's name is not based on *S. virginianum* L., which is treated as a separate species on the same page of the Sketch.

Solidago angustifolia Ell. ii. 388. No type was found at Charleston. There is, however, a fragment in the Gray Herbarium with a Torrey & Gray label reading, "*S. angustifolia* Ell. ! ramus ex herb. ips." This is very likely a duplicate given to Torrey when he borrowed Elliott's material and shared by him with Gray. S. PETIOLATA Mill. (Fernald).

Tillandsia Bartramii Ell. i. 379. "Hab. Mortar Swamp, Liberty Co., Georg. Mr. Le Conte." T. TENUIFOLIA L. (L. B. Smith).

TRILLIUM CATESBAEI Ell. i. 429. "Hab. Car. et Geor. sup. Mesrs. Brown & Perry"

TRILLIUM NERVOSUM Ell. i. 429. "Hab. Car. sup. Mr. Greene."

Vicia acutifolia Ell. ii. 225. A specimen labelled "*Vicia* Flor. Apr. Scriven Co. Georgia" and named *V. acutifolia* by B. & B. is probably to be taken as type.

Villarsia cordata Ell. i. 230. "Hab. juxta Granby in rivulo dicto Savannah Hunt. Flor. Aug. Sept." *NYMPHOIDES CORDATUM* (Ell.) Fern.

VIOLA ESCULENTA Ell. ex Brainerd, Bull. Torr. Bot. Club xxxvii. 588 (1910). Label reads: "*Viola esculenta* mihi. Heterophylla Muhl. Fl. Apr. in udis Ogeechee etiamsi [words illegible] Pennsylv."

VIOLA TRIPARTITA Ell. i. 302. "Hab. Athens Georg. Mr. Green."

THE HYBRID OAK, \times QUERCUS RUDKINI, AT ARLINGTON, VIRGINIA

H. A. ALLARD

(PLATE 709)

Fifteen or twenty years ago the writer found a small oak seedling at Lyon Park, Arlington Co., Virginia, which appeared to combine some of the characteristics of two common species of oak growing in the immediate locality, namely, the Willow Oak, *Quercus phellos* L., and the Black Jack Oak, *Q. marilandica* Muench. Other members of the Red Oak group also grew here, including the Pin Oak, *Quercus palustris* Muench., the Scarlet Oak, *Q. coccinea* Muench., the Black Oak, *Q. velutina* Lam., the Red Oak, *Q. borealis* Michx. var. *maxima* (Marsh.) Ashe, and the Spanish Oak, *Q. falcata* Michx.

The shape, texture, pubescence, greenness and luster of the leaf, bud characters, and acorn characters suggested hybridity between *Q. phellos* and *Q. marilandica*, rather than between any other species of this Red Oak assemblage.

An interest in the flora of our area, and more especially in some of the supposedly hybrid oaks of the District area, led the writer to publish an account of some of these aberrant forms and to report on a study of the progeny of Saul's Oak, *Quercus saulii* Schneid., growing at Arlington, Va.

In this paper¹ drawings were presented illustrating various leaf forms produced by the supposed hybrid oak, *Q. phellos* \times *mari-*

¹ "A Progeny Study of the So-Called Oak Species *Quercus saulii*, With Notes on Other Probable Hybrids Found in or Near the District of Columbia," by H. A. Allard. Bull. Torr. Bot. Club 59: 207-277, 1932.

landica above referred to. At that time, the actual hybrid nature of this oak and the parents involved was a matter of pure conjecture. After an interim of nearly ten years, further corroborative evidence appears at hand establishing with even greater certainty the hybrid origin of this oak involving *phellos* and *marilandica* parentage.

Recently Dr. W. C. Coker of the University of North Carolina, visited the writer and, after an examination of this oak material, tentatively pronounced it to be similar to a hybrid oak discovered some years ago at Chapel Hill, North Carolina.

This oak was referred to in a footnote in the excellent work by Coker and Totten¹ (p. 157). It was stated in this footnote that the tree was regarded as a hybrid between *Q. phellos* and *Q. marilandica*. Many acorns were then planted in their propagating gardens from this aberrant tree, and a progeny of about 75 trees was secured. These immediate descendants showed great variation in all morphological characters and also in growth habit. The leaves of some of these trees almost duplicated the *phellos* parent, while others closely duplicated the *marilandica* parent, substantiating their previous surmise as to the species involved in its hybridity. Other trees in this progeny showed various intermediates in form of leaf. A number of the trees were poor and stunted due probably to some semilethal combination of factors, while others were vigorous and striking in appearance due to more favorable combinations.

This study of the actual descendants of the oak tree found at Chapel Hill, and comparisons of this material with that at Arlington, Virginia, show that the similarity of their characteristics is so close that there seems to be no other logical alternative than to pronounce the latter definitely a hybrid of *Q. phellos* and *Q. marilandica*.

The opinion is held by some specialists that most of the so-called hybrids of the District area appear to be merely aberrant forms of our well recognized species, the only exception, perhaps, being *Quercus saulii*.

In view of the more recent evidence of its hybrid nature, the Arlington oak cannot well be regarded as a simple variant of

¹ "Trees of the Southeastern States," by William Chambers Coker and Henry Roland Totten, University of North Carolina Press, Chapel Hill, N. C., 2nd Ed., 1937.

either *Q. phellos* or *Q. marilandica*. If this view is held unconditionally, then its various intermediate characteristics and its progeny make it a variant of both, and *Q. phellos* and *Q. marilandica* then become extremes of one species-assemblage, a concept which most botanists would not subscribe to.

This hybrid oak appears to have been first described by N. L. Britton¹ in 1882 and named by him *Quercus Rudkini*. Later C. S. Sargent² illustrated a supposed cross of *Q. phellos* and *Q. marilandica*.

It may be stated that the illustrations both of Britton and of Sargent agree closely with the Arlington and the Chapel Hill material.

There is also some question as to whether it is entirely correct to regard the Bartram Oak, *Quercus heterophylla* Michx. f., as a mere variant of *Q. phellos* or of some other member of the Red Oak group.

It should be remembered in this connection that D. T. MacDougal³ in 1907 obtained 55 seedlings of a Bartram form of oak, which gave extremes of leaf form extending from *Q. phellos* to *Q. maxima*. From this MacDougal reasonably concluded that Bartram's oak is an indubitable hybrid which has naturally arisen between *Q. phellos* and *Q. maxima*. It is doubtful if any stretch of the imagination will, in this instance, lead one to conclude that this assortment shows merely the variations to be expected in either *Q. phellos* or in *Q. maxima*. Why, furthermore, should we regard MacDougal's experimental work as invalid evidence in this matter?

If our oaks hybridize, as undoubtedly they sometimes do, there is perhaps a very remote probability that the first cross or any particular derivative of such cross will survive. While it is established experimentally that in the case of *Quercus heterophylla* MacDougal's Bartram form was of *phellos* × *maxima* parentage, there is still some question as to its actual identity with the original material which the younger Michaux described and named in 1810. However, if the Michaux type is identical in origin and character with MacDougal's tree and the District

¹ "On a Hybrid Oak Near Keyport, N. J.", Bull. Torr. Bot. Club 9: 13-15. pl. 10-12. 1882.

² "The Silva of North America", by C. S. Sargent, 8: pl. 437. 1895.

³ "Hybridization of Wild Plants", by D. T. MacDougal, Bot. Gaz. 43: 45-58, 1907.



A. Twig of *QUERCUS RUDKINI* Britton (*Q. phellos* L. \times *Q. marilandica* Muench.) growing at Arlington, Va., on the writer's grounds. B. Twig of tree of *Q. RUDKINI* at Chapel Hill, N. C., F_1 seedlings of which are shown as C, D, E, and F. C and D show plainly the leaf-form character of *marilandica*, D very closely resembling this species. E retains certain *marilandica* characters. F is a form with laurel-like leaves, showing more of the character of *phellos* by its lack of lobing. Orig. photo. by H. A. Allard, about 1/6 natural size. Chapel Hill material represented by B, C, D, E, and F was kindly furnished by Dr. W. C. Coker of the University of North Carolina, Chapel Hill, N. C.

material, then *Q. heterophylla* in our area is a valid and proven hybrid quite as much as *Q. saulii*, or the Arlington, Va., and the Chapel Hill, N. C., material of *Q. phellos* \times *marilandica*.

The writer fully appreciates the difficulties involved in the identification of oak material where hybrid forms are concerned. It may be stated that the Arlington *Q. phellos* \times *marilandica* material was identified as *Q. heterophylla* by some workers in the United States National Herbarium. This was really a very natural procedure for anyone, owing to the confusion of different material brought together under this name, partly because the original type of Michaux was not conveniently at hand.

There is no reason why *Q. velutina*, *Q. coccinea*, *Q. falcata*, and *Q. palustris* should not also hybridize occasionally with *Q. phellos*, and some of the derivatives of these may well very closely resemble material of the *Q. phellos* \times *maxima* assemblage. This fact may be responsible in part for no little confusion in determinations of such hybrid material.

The *Q. phellos* \times *marilandica* hybrid found at Arlington may well occur elsewhere in our area. For this reason an abundance of material, both foliage and acorns, of the Arlington oak originally described and illustrated (see footnote 1), has been collected under the writer's numbers 9707, 9729 and 9802.

Such specimens as have been brought together under the designation *Q. heterophylla* in the collections of the United States National Herbarium, include a wide assortment of material. Most of this, if of hybrid origin, appears in some instances to involve other crosses than *Q. phellos* \times *marilandica*, although this should not be so, for Bartram oak material which involves the cross *Q. phellos* \times *maxima*.

One sheet, however, No. 1437, collected by T. H. Kearney in 1898 at Ocean View, Norfolk Co., Va., approaches closely the Arlington material of *Q. phellos* \times *marilandica*.

Material of the Arlington hybrid tree has been deposited in the Herbarium of the National Arboretum (9707 & 9729), in the Herbarium of the University of North Carolina (9802), and in the United States National Herbarium (9707, 9729 & 9802) from which duplicates will be widely distributed. All material is from the original tree first reported in 1932 (footnote 1).

It may be stated that a new flora is now proposed for the

Washington area. This is designed to cover a greatly enlarged area as compared with the original District Flora. Such a work when completed will represent the efforts of many botanists, and is planned to serve as an authoritative flora for many years to come for botanical students interested in this area. For this reason, a proper evaluation of the hybrid or non-hybrid status of some of our variant oak material is particularly urgent at the present time.

WASHINGTON, D. C.

HIBISCUS MOSCHEUTOS AND H. PALUSTRIS

M. L. FERNALD

FOR three and a half centuries three variations of the native *Hibiscus* of the Atlantic slope of the United States, with lance-ovate to subrotund leaves green and glabrous or merely scabridulous above and soft-pubescent beneath, have been cultivated in Europe. These include (1) the more northern plant with the principal cauline leaves, below the inflorescence, broadly ovate to suborbicular in outline and often angulate-lobed (suggesting maple leaves), averaging three fourths as broad as long but sometimes even broader than long, with most or all peduncles free, except sometimes at base, from the subtending petioles, the petals pink to purple, with deeper-colored base, the branches of the style pilose or hirtellous, the capsule subglobose or depressed; (2) a plant quite similar to no. 1 but with creamy-white corolla with red center; and (3) a very different plant, with the principal leaves narrowly ovate to ovate-lanceolate and unlobed or only obsoletely so, or the lower tricuspidate, long-acuminate, averaging only one-third as wide as long, some of the peduncles fused to the lower halves of the subtending petioles, the corolla white or whitish with crimson or red eye, the long styles with glabrous branches, the unexpanded capsules conic-ovoid.

So generally were no. 1 (with relatively broad and short leaves, free peduncles and pink corollas) and no. 3 (with narrower and proportionately longer leaves, often fused peduncles and petioles, and white corollas with red centers) in European gardens and so frequently were they illustrated in full color and so generally described that it was surprising (to put it mildly) to have a

white-flowered plant of cultivation put forward as a brand new species in 1903, as if nothing of the sort had previously been known. At that time, having received from Pitcher & Manda, horticulturists, a plant they were selling as "Crimson-eyed Hibiscus" or *Hibiscus Moscheutos albus*, Britton wrote: "*Hibiscus Moscheutos* has the pink flowers as above noted, a nearly globular, blunt pod, and its calyx-lobes are triangular-ovate, about as broad as long. The crimson-eyed one has an ovoid pod with a long point, and its calyx-segments are triangular-lanceolate, nearly twice as long as broad. I propose that it shall have the botanical name *HIBISCUS OCULIROSEUS*."—Britton in Journ. N. Y. Bot. Gard. iv. 219, 220, pl. xviii (1903). In his plate representing the rose-flowered plant (pl. xvii), which he mistakenly identified as *H. Moscheutos* L., Britton showed a fruiting summit, with globose-ovoid capsules terminating naked peduncles; in his plate of his supposedly new *H. oculiroseus* some of the peduncles fused to the petioles and the capsule conic-ovoid. Although the accompanying quotation seems to indicate that the original wild plants, from which *H. oculiroseus* was developed, came from stations on the Atlantic side of southern New Jersey, it is presumable that some mixture had occurred, since for centuries *H. oculiroseus* had been in cultivation. At least, the hundreds of sheets representing the group in the herbaria of the New York Botanical Garden and of the Academy of Natural Sciences of Philadelphia, kindly loaned me for comparison, show no New Jersey specimens like the long-fruited plant illustrated by Britton as his new *H. oculiroseus* nor like the flowering specimen from Pitcher & Manda marked clearly by Dr. Britton as TYPE of *H. oculiroseus*. The latter has the style-branches glabrous. The white-flowered, like the roseate-flowered, material from New Jersey, New York and New England all has pubescent style-branches and characteristic foliage and lower peduncles identifying it with form no. 2 of my preliminary grouping, one of the plants long cultivated in Europe and beautifully illustrated in full color as *H. Moscheutos* (from the gardens of A. B. Lambert) by Sweet, British Flower Garden, iii. t. 286 (1829), Sweet not only showing the white corolla with red center and the pubescent style-branches, but explicitly describing the "lower leaves broadest, and more or less three-

lobed, the side lobes short and acute. . . . *Peduncles* . . . the lower ones longest and axillary. . . . *Style*. . . . smooth below, but hairy above the stamens." The purple-flowered plant, so general from Massachusetts to New Jersey, Delaware, eastern Maryland, and less so to eastern Virginia, with similar leaves and peduncles and with pubescent style-branches (*H. palustris* L.) was to Sweet merely *H. Moscheutos*, β . *purpurascens* Sweet, l. c. (1829). Nearly 60 years later this albino of *H. palustris* was again described and illustrated in natural color, this time as *H. palustris* (as *paluster*), var. *albi-*

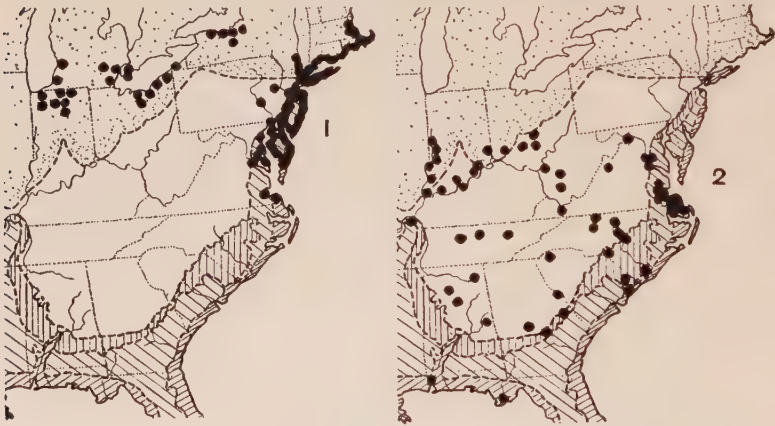


FIG. 1, Range of *HIBISCUS PALUSTRIS*; FIG. 2, of *H. MOSCHEUTOS*.

florus Leichtlin ex Kolb in Neubert's Deutsch. Gart. Mag. xl. 193, t. 10 (1887).

Unfortunately, color alone became the one test of the supposedly new *Hibiscus oculiroseus* and on the sheet with the plate of that plant at New York there was mounted a memorandum by Dr. Britton, that *H. oculiroseus* fills a marsh on Staten Island "all with crimson eye, but petals either white or pink on adjacent plants but not on same plant"; and on the same sheet, marked as *H. oculiroseus*, there was mounted a beautiful photograph, taken by Arthur Hollick on Staten Island, of the white-flowered *H. palustris* (with broad 3-lobed maple-like leaves). Quite similar material, with broad maple-like leaves and pubescent style-branches, was distributed as *H. oculiroseus*

from the New York Botanical Garden. Thus, confusion at the source promptly discredited *H. oculiroseus* and completely obscured morphological and geographic differences between the series which abounds from Massachusetts to New Jersey and on to eastern Virginia and inland across New York and southern Ontario and westward along the Great Lakes, and a more southern plant, found from northern Florida northward to Chesapeake Bay and Anacostia and Potomac Rivers, Virginia, and to West Virginia, Ohio and Indiana. The former is *H. palustris* L., the latter, not definitely known in Delaware, eastern Pennsylvania, New Jersey, New York and New England, is *H. Moscheutos* L. After making thousands of measurements of the many hundreds of specimens in the four collections, those of the Gray Herbarium, the New England Botanical Club, the New York Botanical Garden and the Academy of Natural Sciences of Philadelphia (including a tremendous local representation) I find that the northeastern and the usually more southern plants are separated on the following lines.

H. PALUSTRIS: median cauline leaves (below inflorescence) usually broadly ovate to roundish and commonly 3-lobed, 7–18 (av. 12) cm. long and 4.5–11.5 (av. 8) cm. broad, sometimes as broad as or broader than long; peduncles all or nearly all leafless or united close to base with subtending petiole (only exceptionally, about 3 %, leafy-bracted), the joint or node 0.5–2 (av. 1) cm. below the calyx; petals pink, purple or white, usually with red or crimson base; staminal column 0.8–2 (av. 1.4) cm. in diameter; style (from summit of ovary) 3–6 (av. 4.4) cm. long, the exerted half (from summit of staminal tube to tips of branches) 1–3 (av. 1.8) cm. long, the branches pubescent (usually heavily so); capsule subglobose, with depressed or broadly rounded summit, blunt or abruptly short-tipped, 2–2.5 cm. high. —Massachusetts to eastern Virginia, inland from western New York to southern Ontario, southern Michigan and northern Indiana (MAP 1).

H. MOSCHEUTOS (*H. oculiroseus* as to TYPE): median cauline leaves narrowly ovate to lanceolate, 8–22 (av. 13) cm. long and 3–9 (av. 5.3) cm. broad, *i. e.*, averaging 2.7 cm. narrower than in *H. palustris*, unlobed or the middle and lower tricuspidate; one to several peduncles usually fused for one third to three fourths their length to subtending petiole, the node 1–5 (av. 2.25) cm. below the calyx; petals white or creamy with purple or red base; staminal column 1.2–2.5 (av. 2) cm. in diameter; style 4–8 (av. 6) cm. long, its exerted half 1–3.5 (av. 2.6) cm. long, the

branches glabrous (or very rarely remotely hispid); capsule conic-ovoid, tapering to erect beak, 2.5–3 cm. long.—Northern Florida and Alabama, northward to Chesapeake Bay and tributaries, Maryland and Virginia, West Virginia, southern Ohio and southern Indiana (MAP 2).

Linnaeus, knowing two of these American plants, as his *Hibiscus Moscheutos* and his *H. palustris*, confused with them quite different elements from Africa and elsewhere; but when his treatments of 1753 are analyzed and the extraneous (African and other Old World) matter excluded we have left a core of data under each which shows that he had primarily in mind (from Virginia), the two elements which had been collected there and described by Clayton.

The two temperate eastern North American species of Linnaeus (1753) were as follows:

1. HIBISCUS foliis ovatis acuminatis serratis, caule *Moscheutos*.
simplicissimo, petiolis floriferis. *Hort. ups.* 205.
Hibiscus foliis ovatis crenatis: angulis lateralibus obso-
tis. Hort. cliff. 349. *Gron. virg.* 79. *Roy. lugd.* 358.
Alcea rosea, peregrina, forte *Rosa moscheutos plinii*.
Corn. canad. 144. t. 145. *Moris. hist.* 2. p. 532. s. 5.
t. 19. f. 6. ♀
Habitat in Canada, Virginia.
2. HIBISCUS caule herbaceo simplicissimo, foliis ova- *palustris*.
tis subtrilobis subtus tomentosis, floribus axillari-
bus.
Althaea palustris Bauh. pin. 316. (ex horto C. B. Bur-
serus).
Althaea hortensis s. peregrina. Dod. pempt. 655 [644]
Habitat in Virginia. Gronov. Canada. Kalm. ♀
Habitus H. Moscheutos. Caules sesquipedales, non ramosi,
annui. Folia lato-ovata, obtuse serrata, trinervia, acuminata,
subtus tomentosa. Pedunculi ex axillis foliorum superiorum
solitarii, petiolo longiores, uniflori, non e petiolo enati, genicu-
lati. Flos maximus.

The reference to Cornut's misnamed *Canadensium Plantarum* (1635) leads to a plant of Africa, thought by Cornut to be Pliny's *Althaea* (changed by Linnaeus to *Alcea*) *rosea*, a bushy-branched plant shown with strongly depressed and long-beaked fruiting calices such as never occur in our American species. The reference to Morison leads to the same African plant, Morison copying his illustration directly from Cornut, while the Royen reference gives no further light. Taking into account

chiefly the references to plants actually or presumably studied by Linnaeus from Virginia we do better. According to the late Dr. B. Daydon Jackson, there was no material of *Hibiscus Moscheutos* in the Linnean Herbarium. The Hortus Cliffortianus plants "*Hibiscus foliis ovatis crenatis*," etc. with the synonyms *Ketmia africana* and *Althea rosea* were based in part on a plant which "*Crescit in Africa*", while a specimen labeled by Linnaeus "*Hibiscus Moscheutos*" in the Clifford Herbarium is *Kosteletzkya virginica* (L.) Presl, var. *altheaefolia* Chapm. Furthermore, the statement by Linnaeus that his *H. Moscheutos* grows in Canada was evidently derived from the misleading title of Cornut's work. We have left, then, the original account in Hortus Upsaliensis (1748), the account in Gronovius and the diagnosis in 1753. Cutting out the misleading references already discussed for an American plant, to Royen, Cornut, Morison and others, there are left the following very clear diagnosis and observation in Hortus Upsaliensis:

1. *HIBISCUS foliis ovatis acuminatis serratis, caule simplicissimo, petiolis floriferis.*

Hibiscus foliis ovatis crenatis: angulis lateralibus obsoletis.

Hort. Cliff. 349. *Gron. virg.* 76.

Ketmia americana, populi folio. Tourn. inst. 100.

Habitat in Canada, Virginia.

Obs. *Caulis quotannis perit, illeque simplicissimus est & pedunculus exit e petiolo, non vero e caule, quod indicat affinitatem cum Turnera. Flos vere speciosus & pulcherrimus.*

The Tournefort reference, misquoted by Linnaeus "*Ketmia americana, populi folio*", was originally *Ketmia Africana, Populi folio* and based directly on the African *Althea rosea* of Cornut; but turning to what Linnaeus himself had studied, besides the plant of the Upsala garden so vividly described, we come to the account by Gronovius. Here again, omitting the literary guesses, the kernel is in the original account by Clayton of the living plant: "*Ketmia palustris frutescens, flore maximo candido, umbilico purpureo, foliis Aceris mollibus.—Clayt. n. 122.*"

Reassembling the accounts of the actual material studied by Linnaeus and omitting all the erroneous synonyms, we get a simple-stemmed perennial, with ovate, acuminate leaves (Clay-

ton's "foliis Aceris" could have been based on the albino of *H. palustris*), the petioles and peduncles connate, the corolla white with purple center. The white corolla with purple center and the relatively unlobed acuminate leaf were two of the characters emphasized by Britton in describing his *H. oculiroseus*. The bearing of a leaf on the peduncle was not mentioned by him but his artist caught this character, one peduncle in his plate showing a leaf below the fruiting calyx, two each with a leaf borne high on a peduncle with the calyx gone. Just such plants were frequently illustrated and often described by early post-Linnæan botanists of Europe as *H. Moscheutos*. Cavanilles, Willdenow, Persoon, DeCandolle, Sprengel, Don and others maintained *H. Moscheutos* and *H. palustris* as distinct on the Linnean characters, Cavanilles, Diss. 163, t. 65, fig. 1 (1785) showing the peduncles of *H. Moscheutos* leafy-bracted and describing the "Corolla magna luteo-albicans; petalis unguibus incarnatis"; Willdenow Sp. Pl. iii. 806 (1800), concocting the German name for it "Blattstielblütiger Hibiscus"; Persoon, Syn. ii. 254 (1806) adding to the leaf-outline and the "petiolis floriferis", "Cor. albida, fundo purpureo"; and so on with many authors. Walter, familiar only with the southern species, described as *H. Moscheutos* a very large-flowered plant with leaves silky on both sides, presumably *H. lasiocarpus* Cav., and for true *H. Moscheutos* he misused the name *H. palustris*, "petiolis floriferis; floribus . . . albis fundo purpureo"; but the most beautiful demonstration of the early correct interpretation of *H. Moscheutos* was by Nees & Sinning in their Samml. Schönblühende Gewächse, 87, t. 37 (1831). Their description of *H. Moscheutos*, Der blattstielblüthige Hibiscus, was explicit: "Diese Pflanze ist dem, in dem zweiten Heft beschriebenen, *Hibiscus palustris* zwar sehr ähnlich, aber doch durch folgende Merkmale hinlänglich verschieden:

Die Blätter sind nur an dem untern Theil des Stengels dreispitzig (tricuspidata), an dem obern Theil eiförmig und in eine lange Spitze ausgedehnt.

Die Blütenstiele entspringen an der Spitze des Stengels aus den Blattstielen, oder sind vielmehr mit diesen bis über die Mitte in eins verwachsen, und sind oberhalb der Mitte mit einem verdickten Absatz versehen; doch kommen auch besonders nach unten einzelne Blütenstiele ganz aus den Winkeln der Blattstiele hervor.

Die Blüten sind noch grösser, schön weiss mit einem purpurrothen Flecken am Grunde . . . "

Nothing could more perfectly display the full beauty of true *Hibiscus Moscheutos* than the great folio plate of Nees & Sinning, showing life-size and in perfect color the lance-ovate leaves, the several peduncles leafy-bracted near or above the middle and great white but red-eyed corollas 2 dm. broad, with style nearly 6 cm. long, its branches glabrous. Had Dr. Britton taken a moment and looked back merely to Nees & Sinning he would have seen a superb picture of *H. oculiroseus*, correctly called *H. Moscheutos* L.

With true southern *Hibiscus Moscheutos* having a white corolla with a red eye, with the northeastern *H. palustris* often having an albino of similar flower-color and with exceptional peduncles uniting at base with a petiole, it is natural that, by neglecting the different proportions of leaf-breadth to -length and the differences in style and capsule and the thickness of staminal column, students should have thought of the two species as one. In 1806, in Curtis's Bot. Mag. xxiii. t. 882, Sims described and illustrated as *H. palustris* the plant of Linnaeus—with broad-ovate angulate-lobed leaves, pink petals, short style, and ebracteate peduncles; and he then suggested the possible identity of *H. palustris* and *H. Moscheutos*. This suggestion of Sims was not generally followed, but Torrey & Gray, familiar only with the plant of New Jersey and southeastern New York, where either pink or white corollas occur, considered this circumstance sufficiently conclusive and wrote: "Flowers . . . rose-color, or sometimes nearly white, crimson at the centre. . . . From numerous observations, we are convinced that *H. Moscheutos* and *H. palustris* are not distinct species. It is not uncommon to find the peduncles and petioles both distinct and united on the same plant."—T. & G. Fl. N. Am. i. 237 (1838). From then on the two were generally merged as *H. Moscheutos*, although Hochreutiner argued in Ann. Conserv. Jard. Bot. Genève, iv. 140 (1900), that the suggestion of possible identity by Sims in 1806 constituted reduction of *H. Moscheutos* to *H. palustris*; and in RHODORA, xli. 112 (1939) I followed Hochreutiner in taking up *H. palustris* to include *H. Moscheutos*; and, without in the least understanding the plants, I published the combination *H. palustris*, forma *oculiroseus* (Britton) Fernald. At that time I had looked into the other characters

of the two quite as little as have most botanists; I should not now unite them.

I have repeatedly referred to the northern plant with broader-ovate leaves, mostly naked peduncles, roseate (or sometimes white) flowers, pubescent styles and subglobose capsules as true *H. palustris*. Linnaeus's account in 1753 has already been quoted (p. 270). His diagnosis and critical comments are clear. The only *Hibiscus* given by Gronovius, besides the one cited by Linnaeus under *H. Moscheutos*, was described "flore carneo speciosa, umbilico purpureo". The only other references given by Linnaeus are to Dodens (1583) and to Bauhin (1633). Dodens gave a remarkably good illustration of the plant so common from Massachusetts to New Jersey, etc., then cultivated in Belgium, with a special figure of the subglobose capsule, and his description said "flos . . . dilutè in rubro purpureus, aut ex albido purpurascens . . . : fructus . . . rotunda ferè ac globosa"; but the very condensed series of bibliographic references by Bauhin (including Theophrastus) is wholly inconclusive.

Until the ill-advised reduction of *H. palustris* to *H. Moscheutos*, the former was clearly understood. Just as they correctly defined *H. Moscheutos*, so Cavanilles, Willdenow, Persoon, DeCandolle, Sprengel and others up to Torrey & Gray understood *H. palustris* and many good plates, suggesting that of Sims, were published of it. In Bot. Reg. xvii. t. 1463 (1832) Lindley had a beautiful plate of it, and a clear description, including "*Folia ovata v. cordato-ovata, triloba . . . Flores . . . maximè, rosei*"; but, influenced by the verdict of Torrey & Gray, Lindley in Bot. Reg. xxxiii. t. 7 (1847), showed it again as *H. Moscheutos*. That the northern plant may have the petals roseate or sometimes white with crimson base was recognized by the best early field-botanists of New England, New York, New Jersey and Pennsylvania. Torrey & Gray have already been quoted. Similarly, Barton, describing the plant of the Delaware said "reddish-purple; rarely white".—Bart. Comp. Fl. Phila. ii. 65 (1818).

I have gone into considerable detail in bringing forward the evidence, as I at present see it, that *Hibiscus Moscheutos* and *H. palustris* are perfectly distinct species, although the occurrence

of color-forms with white flowers with crimson centers in the latter has produced a confusion resulting in their merging by those who have not realized their other characters. When we know more intimately the degree of variation of the two in the area, Maryland and eastern Virginia, where both are found, they may prove to merge. At present I lack conclusive evidence that there is more transition than might result from hybridizing¹. Unusually long-styled plants from the Eastern Shore of Maryland and from Cape May, New Jersey, may eventually prove to be transitional, especially if the smooth-styled plant with conic-ovoid capsule described as *H. oculiroseus* actually originated in southeastern New Jersey. Furthermore, pink-flowered forms of the southern *H. Moscheutos* are suspected; their actual occurrence is not satisfactorily demonstrated. It would have been possible and much quicker² dogmatically to assert that the two are distinct, without an analysis of the fundamental literature and the overlooked morphological characters of the two. In view of a rather deeply entrenched conviction that they are merely color-forms of one species, this longer consideration has seemed desirable; too dogmatic assertions, without careful checking of these matters, have already produced sufficient confusion.

Since reaching these tentative conclusions I find that the late Edward Lee Greene, in his characteristically rhetorical manner and without pointing out new characters, came to the same conclusion. In his Leaflets, ii. 64, 65 (1910) Greene wrote:

Taking Gray's Synoptical Flora for the authority upon our hydrophile kinds of *Hibiscus*, a northern botanist would believe without a doubt that the broad-leaved pink-flowered plant of New England marshes is to be *H. Moscheutos*, Linn. Nevertheless Linnaeus, who rarely distinguished species where they were not well marked, said that this northern plant should be called *H. palustris*. Its leaves are not only broad, but are lobed, and this with some suggestion of the outline of maple leaves. They say that the flowers of this, commonly of a pinkish or light rose-color, are sometimes white. But let the New England plant lover, taught that his northern plant is *H. Moscheutos*, come southward in summer time to the marshes of Chesapeake Bay and its tributaries, and he will be apt to ask

¹ See comments of Dr. A. B. Stout in *Addisonia*, iii. under *H. oculiroseus*, t. 88 (1918), the flowering specimen not too good a match for Britton's original plate of a fruiting tip nor for the flowering specimen designated by him as *TYPE* of *H. oculiroseus*.

² As the late George Foot Moore used to say: "It isn't the time it takes to point out evident facts which troubles one; it is the time it takes to demonstrate that they have always been known and are not new."

what this hibiscus is that has always large cream-colored corollas, and with long narrow lanceolate and wholly uncut foliage; for he will not believe, unless his faith in great books is immovable, that this and the other are the same.

The northern plant is *H. palustris*. Only the great yellowish-white southern one is *H. Moscheutos*, and it is improbable that any man, either botanist or botanophile, knowing both, will doubt their distinctness. Indeed, one of the most capable of northern botanists, though of an earlier generation, namely Bigelow, knew nothing of any other native hibiscus in Massachusetts than *H. palustris*. A living botanist of the North, and one well travelled, once asked me what this great cream-colored narrow-leaved plant of these southern marshes could be; so confident had he been that the maple-leaved red-flowered one of the North had been authoritatively determined by great men to be what they had called it; and he seemed to think that our plant of these regions must be nondescript.

Nevertheless, Hitchcock & Standley, in Fl. Distr. Columb. 203, 204 (1919), got the wires crossed and defined *H. palustris* as having "Leaves . . . lanceolate or ovate; flowers cream-colored, with crimson eye", a plant known in their area on "Tidal marshes along the Potomac and Eastern Branch [Anacostia] . . . Southeastern U. S."; and they added the comment: "This species has been confused with the pink-flowered *H. Moscheutos* L., found north of our region". Greene had correctly pointed out that the northern plant (see MAP 1) is *H. palustris*, the southern (see MAP 2) *H. Moscheutos*. That much seems certain. Whether they are finally to be considered as two quite distinct species or as extremes of one specific type can be satisfactorily determined only when we understand the series from Cape May, New Jersey and from Chesapeake Bay to False Cape, Virginia. Greene and, after him, Hitchcock & Standley, implied that in the region covered by the Flora of the District of Columbia the only representative of the series is the narrow-leaved and white-flowered southern plant. Similarly in the new Checklist of Plants in the Washington-Baltimore Area (Sept., 1941), covering "the territory extending from the Pennsylvania-Maryland boundary to the Rappahannock River", only this extreme (as *H. palustris*, forma *oculiroseus*) is given. One would, therefore, conclude that the "pink-flowered" plant "found north of our region" does not grow in the Washington-Baltimore area. It is, consequently, important to record that on August 3, 1910, Dr. Francis W. Pennell collected near Alexandria (only a few miles below Washington) three numbers,

2582, 2585 and 2586, which are exceptionally interesting. The first, typical *H. Moscheutos* as here defined (with narrow leaves, white flowers with red eye, leafy-bracted peduncles, and glabrous style-branches) he correctly determined as *H. oculiroseus*; the second, broad-leaved, with roseate corolla and pilose style-branches (true *H. palustris* "found north of our [the Washington] region") he correctly identified, in contrast with *H. oculiroseus*, as *H. Moscheutos* sensu authors of the period; while the third was considered a hybrid between the other two. The characteristic specimen of *H. palustris* from Alexandria is in the Herbarium of the Academy of Natural Sciences of Philadelphia. Other broad-leaved plants with pilose style-branches, depressed capsule or other traits which put them into *H. palustris* are before me from the following stations in the Washington-Baltimore area of Maryland: along the canal, Chesapeake City, Cecil County, *Tidestrom*, no. 11,446 (Gray Herb.); Back Creek, north of Chesapeake City, *B. Long*, no. 42,289, very characteristic fruit (Phil. Acad.); Back Shores, Baltimore, *C. C. Plitt*, no. 686 (Gray Herb.); Back Bay, near Annapolis, *Tidestrom*, no. 11,484 (Gray Herb.); Plumpoint, *G. H. Shull*, no. 167 (Gray Herb.; N. Y.); Patuxent River east of Upper Marlboro, *Wherry & Pennell*, no. 12,402 (Phil. Acad.). It is certainly to be hoped that the projected work, to which the Checklist of September, 1941 is a forerunner, will not merit the criticism of its predecessor: "The logical conclusion actually seems to be that the aim of the new Flora is not to open the path of knowledge to the Flora of the District of Columbia, but to the Flora of the National Herbarium"¹.

Farther south the poorly understood *Hibiscus incanus* Wendl. comes into the problem. Originally described and illustrated as having small and narrow leaves and sulphur-yellow corollas, it is stated by Small to have the relatively short petals sometimes white or pink and to differ from *H. Moscheutos* (*H. oculiroseus* of Small's treatment) in having the capsule ellipsoid and hirsute, instead of conical and glabrous. Considerable material of *H. Moscheutos* from the Carolinas has recently been distributed as *H. incanus* or as a variety of *H. palustris* based upon *H. incanus*. With only inadequate material of the latter species its status in the series remains doubtful.

¹ Theo. Holm, *Am. Midl. Nat.* v. 175 (1921).

In the following paragraphs I attempt to summarize the more significant bibliography of *Hibiscus palustris* and *H. Moscheutos* and to cite some characteristic illustrations. This treatment, it should be understood, is not necessarily final; in a group with plastic characters finality of judgment is not easily reached.

H. PALUSTRIS L. Sp. Pl. 693 (1753) as to descr. and citations of Dodens and Gronovius; Willd. Sp. Pl. iii¹. 806 (1800); Sims in Curt. Bot. Mag. xxiii. t. 882 (1806); Allg. Deutsch. Gart. Mag. iii. t. 19, fig. 2 (1806); Pers. Syn. ii. 254 (1806); Bigel. Fl. Bost. 164 (1814); Barton, Compend. Fl. Phila. ii. 65 (1818); DC. Prodr. i. 450 (1824); Torrey, Compend. 256 (1826); Spreng. Syst. 105 (1826); Nees & Sinning, Samml. Schönblühender Gewächse, 33, t. 15 (1831); Lindl. Bot. Reg. xvii. t. 1462 (1832); Géel. Sert. Bot. Cl. xvi. t. (unnumbered) (1832). *H. Moscheutos* sensu Lindl. Bot. Reg. xxxiii. t. 7 (1847); sensu Meehan's Mo. ii. t. 11 (1892); sensu Dana, How to Know the Wild Fl. t. 75 (1894); sensu Britton in Journ. N. Y. Bot. Gard. iv. 219, t. xvii (1903); sensu Stone, Pl. So. N. J. t. 81 (1911); sensu Stout in Addisonia, iii. t. 99 (1918); sensu House, Wild Fl. N. Y. i. t. 129 (1918); not L. (1753). *H. Moscheutos*, β . *purpurascens* Sweet, Brit. Fl. Gard. iii. sub t. 286 (1829). *H. opulifolius* Greene, Leaflets, ii. 65 (1910). —For statement of characters and range see p. 269.

Forma PECKII (House) House, Bull. N. Y. State Mus. no. 254: 490 (1924). *H. Moscheutos*, f. *Peckii* House, Bull. N. Y. State Mus. nos. 243-244: 54 (1923). *H. palustris* sensu Cav. Diss. 162, t. 65, fig. 2 (1785), descr. "corolla . . . luteo-albicans; petalis unguibus incarnatis". *H. Moscheutos* sensu Sweet, Brit. Fl. Gard. iii. t. 286 (1829). *H. palustris*, var. *albiflorus* Leichtlin ex Kolb in Neubert's Deutsch. Gart. Mag. xl. 193, t. 10 (1887). —The albino.

H. MOSCHEUTOS L. Sp. Pl. 693 (1753); Cav. Diss. 163, t. 65, fig. 1 (1785); Willd. Sp. Pl. iii¹. 806 (1800); Michx. Fl. Bor.-Am. ii. 47 (1803); Pers. Syn. ii. 254 (1806); DC. Prodr. i. 450 (1824); Torrey, Compend. 255 (1826); Spreng. Syst. i. 104 (1826); Nees & Sinning, Samml. Schönbl. Gew. 87, t. 37 (1831); Darby, Man. 50 (1841); Gray, Gen. ii. t. 133 (1849); Schnitzlein, Iconogr. iii. t. 209, fig. 24 (1855); Chapm. Fl. So. States, 57 (1860). *H. palustris* sensu Walt. Fl. Carol. 176 (1788); sensu Hitchc. & Standley, Fl. D. C. 204 (1919); not L. (1753). *H. oculiroseus* Britton in Journ. N. Y. Bot. Gard. iv. 219, t. xviii (1903), as to type and original plate; Small, Man. Se. Fl. 856 (1933). *H. pinetorum* Greene, Leaflets, ii. 66 (1910). *H. palustris*, forma *oculiroseus* (Britton) Fernald in RHODORA, xli. 112 (1939), as to type.

DESMODIUM GLUTINOSUM.—The name *Hedysarum glutinosum*¹ was published by Willdenow in volume III, part 2, of his edition of Linnaeus's *Species Plantarum*. This, I have recently shown, was published in 1802, not in 1803 as stated by Kuntze². I also pointed³ out that Michaux's *Flora Boreali-Americana* (in which *H. acuminatum*⁴ was described) was published in 1803. Discovery of the actual dates of publication of these two works answers decisively the long standing question—which of these two is the proper name to use?

DeCandolle, in 1825⁵, made the combination *Desmodium acuminatum*, based on Michaux's name and placed Willdenow's name in synonymy. Blake in 1924⁶ made the combination *Meibomia acuminata*, and then also indicated the error involved in the application of the name *Desmodium grandiflorum* (Walt.) DC. to Michaux's plant.

Schindler, in 1926⁷, proposed the combination *Desmodium glutinosum*. Although Schindler considered *H. glutinosum* and *H. acuminatum* to have been published simultaneously, he treated the former as the "earliest legitimate epithet"⁸ on the basis that the two taxonomically identical names had first been combined in 1813, when Muhlenberg reduced *H. acuminatum* to synonymy under *H. glutinosum*.

Blake and Schindler accepted 1803 as the proper date of publication of Willdenow's name and of Michaux's. Both men also overlooked the combination *Desmodium glutinosum*, published by Wood in his *Class Book* in 1845⁹. Although it is true that Wood cited neither authority nor synonyms his description leaves no doubt as to his intention nor as to the identity of the plant he was considering. It is a literal translation of Pursh's¹⁰ treatment of *H. glutinosum*, which in turn is an accurate condensation of Willdenow's description and diagnosis of the material sent him by Muhlenberg. Therefore *Desmodium*

¹ Muhl. ex Willd., Sp. Pl. iii². 1198 (1802).

² Kuntze, Rev. Gen. i. cxxxv. (1891).

³ See Schubert in RHODORA xlv. 147-150 (1942).

⁴ Michaux, Fl. Bor.-Am. ii. 72 (1803).

⁵ DC., Prod. ii. 329 (1825).

⁶ Blake in Bot. Gaz. lxxviii. 277 (1924).

⁷ Schindl., in Fedde, Rep. Spec. Nov. Reg. Veg. xxii. 258 (1926).

⁸ Int. Rules Bot. Nomencl. Art. 56 and 60 (2) (1935).

⁹ Wood, Class Book of Botany, 120 (1845).

¹⁰ Pursh, Fl. Am. Sept. ii. 483 (1814).

glutinosum (Muhl. ex Willd.) Wood seems to be the correct name to apply to the plant described by Willdenow, and for the plant described by Michaux with which it is identical.¹—BERNICE G. SCHUBERT, Gray Herbarium.

CHROMOSOMES OF JAMESIANTHUS.—Blake and Sherff² described *J. alabamensis* as the type of a monotypic genus of Compositae with "very close resemblance not only in habit but also in technical characters to the genus *Arnicastrum* Greenm." Dr. Roland M. Harper, who collected the specimens upon which the genus is based, kindly supplied seed of this plant from the original locality: near Russellville, Franklin County, Alabama. Seedlings were grown in the greenhouse.



Plumules, fixed in Carnoy's fluid and smeared in iron-aceto-carmin, were studied cytologically. The chromosome number for three plants was determined. The $2n$ -number at mitotic metaphase is 32 (fig. 1).—DOROTHY A. JOHNSON, Department of Botany, University of Michigan.

¹ For a photograph of the type of *H. glutinosum* I am indebted to Dr. L. Diels of Berlin, and for a fragment of authentic material of *H. acuminatum* to Dr. Francis W. Pennell of the Academy of Natural Sciences in Philadelphia.

² Sherff, E. E. A New Genus of Compositae from Northwestern Alabama. Botanical Series Field Museum of Nat. Hist. 22: 399-403. 1940.

RATES FOR SPECIAL NUMBERS OF RHODORA

RHODORA is issued to regular subscribers for only a small fraction of its cost. For several years the content of the volumes has justified a greatly advanced subscription rate, which has not been requested from subscribers but which eventually may be necessary unless the journal returns to its original modest size, with 16-24-page numbers and few or no illustrations. For the present the price per year to regular advance subscribers is unchanged. Many of the single numbers, however, can be supplied only at special prices, as follows:

Vol. 9, no. 105: 75c	Vol. 34, no. 403: 25c	Vol. 39, no. 457: 25c
Vol. 12, no. 134: 50c	no. 407: 30c	no. 459: 30c
no. 138: 25c		no. 460: 35c
Vol. 13, no. 151: 60c	Vol. 35, no. 409: 35c	no. 461: 30c
Vol. 14, no. 163: 45c	no. 410: 40c	no. 462: 35c
Vol. 15, no. 171: 35c	no. 411: 35c	no. 463: 45c
Vol. 16, no. 182: 25c	no. 412: 35c	no. 464: 65c
Vol. 17, no. 193: 35c	no. 413: 35c	no. 465: 30c
Vol. 18, no. 205: 40c	no. 414: 35c	no. 466: 45c
Vol. 19, no. 224: 30c	no. 415: 35c	no. 467: 35c
no. 225: 40c	no. 416: 35c	no. 468: 35c
Vol. 21, no. 241: 25c	no. 417: 30c	Vol. 40, no. 470: 30c
no. 243: 25c	no. 418: 35c	no. 471: 45c
Vol. 23, no. 265: 25c	no. 419: 40c	no. 472: 30c
no. 268: 30c	Vol. 36, no. 421: 25c	no. 473: 35c
no. 269: 30c	no. 422: 25c	no. 475: 25c
no. 270: 30c	no. 423: 35c	no. 476: 40c
no. 271: 25c	no. 424: 35c	no. 477: 45c
no. 274: 25c	no. 425: 45c	no. 478: 50c
no. 275: 25c	no. 426: 40c	no. 479: 45c
Vol. 24, no. 279: 25c	no. 427: 25c	no. 480: 35c
no. 283: 35c	no. 428: 30c	Vol. 41, no. 481: 35c
Vol. 25, no. 296: 25c	no. 429: 60c	no. 482: 45c
Vol. 26, no. 304: 35c	no. 430: 45c	no. 483: 35c
no. 305: 40c	no. 431: 30c	no. 484: 25c
no. 306: 30c	Vol. 37, no. 433: 30c	no. 485: 35c
Vol. 28, no. 331: 30c	no. 434: 30c	no. 486: 45c
Vol. 29, no. 346: 25c	no. 435: 50c	no. 487: 40c
Vol. 30, no. 351: 35c	no. 436: 60c	no. 488: 50c
no. 356: 35c	no. 437: 40c	no. 489: 85c
no. 357: 25c	no. 438: 30c	no. 490: 40c
Vol. 31, no. 364: 35c	no. 439: 50c	no. 491: 40c
no. 369: 25c	no. 440: 50c	no. 492: 35c
no. 370: 25c	no. 441: 40c	Vol. 42, no. 493: 25c
Vol. 32, no. 376: 30c	no. 442: 25c	no. 494: 25c
no. 382: 35c	no. 443: 45c	no. 495: 30c
no. 383: 30c	no. 444: 45c	no. 496: 35c
Vol. 33, no. 386: 50c	Vol. 38, no. 445: 40c	no. 497: 35c
no. 388: 25c	no. 446: 25c	no. 499: 40c
no. 389: 25c	no. 448: 60c	no. 500: 50c
no. 391: 30c	no. 449: 35c	no. 501: 35c
	no. 450: 60c	no. 502: 40c
	no. 451: 25c	no. 503: 60c
	no. 452: 25c	Vol. 43, no. 505: 25c
	no. 453: 30c	no. 508: 35c
	no. 454: 30c	no. 509: 40c
	no. 455: 45c	no. 511: 30c
	no. 456: 40c	no. 512: 40c
		no. 513: 40c
		no. 514: 60c
		no. 515: 65c
		no. 516: 35c

DUPLICATE BOOKS FOR SALE

Bruch, Ph., Schimper, W. P., and Gumbel, Th. <i>Bryologia Europaea seu Genera Muscorum Europaeorum monographice illustrata</i> . 6 vols. and Supplementum by W. P. Schimper. 681 lithographic plates. Stuttgart, 1836-1866. 4°. 6 vols. have original calf with cloth sides. The Supplementum (1864-1866) with fascicle covers is similarly bound.	\$100.00
Cooke, M. C. <i>Handbook of British Hepaticae</i> . With 7 plates and 200 text figures. London, 1894.	\$ 1.00
Hedwig, J. <i>Theoria generationis et fructificationis plantarum cryptogamicarum</i> . Lipsiae, 1798. 4°. pp. 280 and 42 col. plates. 4°. ½ l.	\$ 6.00
Macoun, J. and Kindberg, N. C. <i>Catalogue of Canadian Plants</i> . Pt. vi.—Musci. 1892. ½ l.	\$ 2.00
Macoun, J. Same. Pt. vii.—Lichenes and Hepaticae. 1902. ½ l.	\$ 2.00
Milde, J. <i>Bryologia Silesiaca</i> . Laubmoos-flora von Nord- und Mittel-Deutschland. Leipzig. 1869. 8°. pp. 410	\$ 1.00
Turner, D. <i>Muscologiae hibernicae spicilegium</i> . Yermuthae & Londini. 1804. 8°. pp. 200 & 16 col. plates.	\$ 2.00

Prices include cost of transportation in U. S. A.

Address Librarian,
GRAY HERBARIUM of HARVARD UNIVERSITY,
 Cambridge, Mass.

Early Volumes of Rhodora

A limited number of the earlier volumes can still be supplied. Libraries and other subscribers needing to complete their sets should communicate with LUDLOW GRISCOM, Museum of Comparative Zoology, Cambridge, Massachusetts.